

CLAIMS

1.- Device for feeding a band (2) in order to deliver for a user a printed voucher (1) generated from said band (2), said device being arranged to co-operate with a printing mechanisms, such a thermal printing mechanism, which comprises first motorised means (4) for driving the printable band (2) packaged into a roll (7), from a reserve to a printing head (3), said device being arranged in order to allow user's access to the portion of band (2) during printing by circulating through the delivery mouth (13) during the printing process thereof, such a device comprising mainly:

*) a chassis (15) fitted with a mouth (13) for delivering the voucher (1) for the user and connected to the printing mechanism,

*) a chamber (5) storing a portion of band (2) during printing, which is interpose between the printing mechanism and the delivery mouth (13),

*) optionally, a cutting member (17) for the separation of the voucher (1) beyond the band (2),

characterised:

in that it comprises moreover means (14) for slaving the speeds driving the band (2) during printing, driving the band (2) jointly by the first motorised means (4) and by second motorised positive driving means (11, 12) of the band (2) located inside the reserve chamber (5), for causing simultaneous and regulated implementation of the first (4) and second (11, 12) driving means relative to one another, the implementation of said slaving means (14) being placed under the control of means (16) for detecting the position of an elastic mobile member (10) for maintaining under tension the band (2) inside the reserve chamber (5), opposing the driving thereof by the second driving means (11,12), a position which varies according to the relative driving speeds of the band (2), respectively by the first (4) and by the second (11, 12) driving means.

2.- A device according to claim 1, characterised:

in that the cutting member (17) is arranged inside the reserve chamber (5) in a fixed position relative to the mobile member (10)

maintaining the band (2) under tension, the voucher (1) being separated by positive driving of the band (2) by the second motorised means (11, 12) towards the cutting member (17), opposing the elastic mobility of the member (10) maintaining the band (2) under tension.

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3.- A device according to any of the claims 1 or 2, characterised:

in that the member (10) maintaining the band (2) under tension is mainly composed of an arm mounted resiliently and rotatably on the chassis (15), opposing a tension applied by the printed arm (2) to the arm (10) under the effect of a driving speed imparted by the second motorised means (11, 12), which is greater than or equal to a driving speed imparted by the first motorised means (4), as the means of detection (16) are for their own part composed of an angular position sensor of the arm (10), for correlative slaved actuation of the first and of the second driving means.

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4.- A device according to claim 3, characterised:

in that the arm forms (10) moreover an intermediate guiding member for the band (2) during printing inside the reserve chamber (5) between two concurrent orientations.

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5.- A device according to claim 3, characterised:

in that the angular position detection sensor (16) of the arm (10) is a reflective opto-coupler which may be fixed indifferently on either member including the chassis (15) and the arm (10), facing respectively either (10, 15) of said members.

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6.- A device according to any of the previous claims, characterised:

in that the delivery mouth (13) is arranged downstream of a voucher (1) evacuation mouth (6) provided at the outlet of the reserve chamber (5) whereas a voucher (1) flatness defect detection sensor (24) is provided between the delivery (13) and evacuation (5) mouths, to cause reverse conveying of the voucher (1) by the second driving means (11, 12) towards a storage receptacle (22), by dint of selective

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guiding means (9) of the voucher (1) between the conveying thereof towards the evacuation mouth (6) and the reverse conveying thereof towards the storage receptacle (22).

5 7.- A device according to claim 6, characterised:

in that the selective guiding means include a first ramp (9) which forms a lower wall of the reserve chamber (5), to guide the voucher (1) towards the evacuation mouth (6) as it is conveyed towards the delivery mouth (13), and if necessary, towards the storage receptacle
10 (22) should the delivery mouth (13) be clogged.

8.- A device according to any of the claims 6 or 7, characterised:

in that third driving means (26) of the voucher (1) are interposed between the second driving means (11, 12) and the storage receptacle
15 (22), to terminate the conveying of the voucher (1) towards the latter after being released from the second motorised means (11, 12) the implementation of the third driving means (26) being placed under the control of the slaving means (14) so that their driving speed of the voucher (1) is greater than or equal to the driving speed of the voucher
20 (1) by the second driving means (11, 12), for maintaining said band under tension as it is conveyed towards the storage receptacle (22).

9.- A device according to claim 8, characterised:

in that the third driving means (26) are fitted with a second ramp
25 (27) prohibiting undesirable return of the voucher (1) from the storage receptacle (22) towards the second driving means (11, 12).

10.- A device according to claim 8, characterised:

in that the implementation of the third driving means (26) of the
30 voucher (1) is placed under the control of a sensor (28) detecting completed conveying of the voucher (1) towards the storage receptacle (22).

11.- A device according to any of the previous claims, characterised:

in that the second driving means (11, 12) being mainly composed of a couple of rolls bearing against one (11) another (12) resiliently, between which the band (2) circulates and whereof one (12) at least is motorised, any of these rolls (11, 12) is supported by a cover (29) for access to the reserve (7) of band (2) for loading purposes, said cover (29) supporting moreover any of the printing head (3) and of a back-up roll (4) co-operating therewith (3), which partake of the printing mechanism,

so that the opening of the cover (29) for loading a band roll (7) enables to access the pathway thereof (2), through the printing mechanism as well as through the reserve chamber (5).

12.- A device according to any of the previous claims, characterised:

in that the cutting member (17) is a knife which includes a bevelled blade whereof the edge (20) is arranged as a dihedron for gradual cut of the band (2) as it is applied against the knife (17), this blade including at each of its lateral ends a crank (21) to provide end lateral lugs in the voucher (1), in order to be held by the second driving means (11, 12) upon completed conveying towards the evacuation mouth (6), while enabling easy removal by the user.

13.- A method for delivering a printed voucher implementing a device according to claim 2, characterised:

in that it consists sequentially:

*) in conveying the portion of band (2) during printing, simultaneously by the first (4) and the second (11, 12) driving means towards and through the delivery mouth (13),

*) in conveying the band (2) at the end of the printing process by the second driving means (11, 12), towards the cutting member (17) to cause the separation of the voucher (1), and

*) in evacuating by the second driving means (11, 12) the voucher (1) out of the reserve chamber (5), while maintaining said voucher, to make it available to the user.

14.- A method for delivering a printed voucher according to claim 13, implementing a device according to claim 6, characterised:

in that it consists sequentially:

- 5 *) in detecting a significant flatness defect of the band (2) during the printing process at the outlet of the evacuation mouth (6) outside the reserve chamber (5),
- *) in interrupting the printing process and separating the voucher (1) from the band (2), then evacuating the voucher (1) totally outside the reserve chamber (5),
- 10 *) in reversing the driving direction of the voucher (1) by the second motorised means (11, 12) and causing the implementation of the third driving means (26).
- *) in detecting the rejection of the voucher (1) inside a storage receptacle (22), and caused the second motorised means (11, 12) to
- 15 stop until the start of a new delivery cycle of a voucher (1).